American Journal of Science and Arts. Conducted by B. Silliman, B. Silliman, jr., and James D. Dana. Vol. V. No. 14. March, 1848. New Haven, 1848.—*From the Editors.*

Mr. Trego was excused from preparing an obituary notice of the late Isaiah Lukens.

Judge Sergeant announced the death of the Hon. Henry Wheaton, a member of this Society, and accompanied the announcement with a sketch of his character and works.

Prof. Frazer announced the death of Dr. Thomas P. Jones, of Washington City, on the 11th inst., in the 75th year of his age.

Dr. Patterson briefly noticed the life and scientific labours of Dr. Jones.

Pending nominations, from No. 203 to No. 223, were read.

Stated Meeting, April 7.

Present, twenty-seven members.

Dr. Chapman, President, in the Chair.

Letters were received and read:—

From the Royal Society of London, dated London, 10th December, 1847, acknowledging the receipt of Transactions and Proceedings of this Society:—

From the Imperial Society of Naturalists, of Moscow, dated Moscow, 9th May, 1846, accompanying a donation to this Society:—

From the Regents of the University of the State of New York, dated 16th March, 1848, acknowledging the receipt of the Transactions and Proceedings of this Society: and,—

From J. C. Adams, Esq., dated St. John's College, Cambridge, 4th March, 1848, acknowledging the receipt of notice of his election as a member of this Society.

The following donations were announced:—

FOR THE LIBRARY.

Three Sheets of U. S. Coast Survey Maps.—*From A. D. Bache, through Hon. J. R. Ingersoll.*

Littell's Living Age: containing a Reprint of the Report of the Trustees of the Massachusetts General Hospital; with a History of the Ether Discovery, and Dr. Morton's Memoir to the French Academy. No. 201. March 18, 1848.—*Anonymous.*

The Encyclopædia of Chemistry, Theoretical and Practical. By James C. Booth and Martin H. Boyé. Nos. 2 to 10, inclusive.—*From J. C. Booth.*

Horatii Tursellini Romani de Particulis Latinæ Orationis. Libellus utilissimus, post curas Jacobi Thomasii et Jo. Conradi Schwarzii denuo recognitus et auctus. Editio in Germania quinta. Lipsiæ, 1769.—*From James Hollahan.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. III. No. 12; with Title and Index to Vol. III. Also Vol. IV. No. 1.—*From the Academy.*

Final Reports of the Building Committee and the Architect of the Girard College for Orphans. Philadelphia, 1848.—*From T. U. Walter, Esq.*

The African Repository and Colonial Journal. April, 1848.—*From the American Colonization Society.*

A Description of Active and Extinct Volcanos, of Earthquakes, and of Thermal Springs; with Remarks on the Causes of these Phenomena, the Character of their respective Products, and their Influence on the Past and Present Condition of the Globe. By Charles Daubeny, M.D., F.R.S. Second Edition. London, 1848. *From the Author.*

Observations made at the Magnetical and Meteorological Observatory at St. Helena. Printed by order of Her Majesty's Government, under the Superintendence of Lieut. Col. Edward Sabine. Vol. I. 1840–1–2–3. London, 1847.—*From the British Government.*

Bulletin de la Société Impériale des Naturalistes de Moscou. Tome XVIII. No. 4. 1845; et Tome XIX. Nos. 1, 2, 3. 1846.—*From the Society.*

Spicilegium Entomographia Rossicæ. Auctore G. Fischer de Waldheim. Moscow.—*From the same.*

Philosophical Transactions of the Royal Society of London, for the Year 1847. Parts 1 and 2.—*From the Society.*

Journal of the Royal Geographical Society of London. Vol. XVII. Part 2. 1847.—*From the Society.*

Proceedings of the Royal Astronomical Society. Vol. VIII. No. 3. January, 1848.—*From the Society.*

Boletin de la Sociedad Economica de Amigos del Pais de Valencia. Año 8°. Tomo 4°. Agosto, 1847.—*From the Society.*

Annals and Magazine of Natural History, including Zoology, Botany and Geology. Second Series. Vol. I. No. 2. Feb. 1848.—*From Sir Wm. Jardine, Bart.*

ADDITIONS TO THE LIBRARY BY PURCHASE.

London, Edinburgh, and Dublin Philosophical Magazine, and Journal of Science. Third Series. No. 213. Feb. 1848.

Astronomische Nachrichten. Nos. 622, 623, 624, and 625. Jan. 1848. Altona.

Dr. F. Bache announced the death of Mr. Nicholas Carlisle, of London, a member of this Society.

Prof. Frazer read the following letter from Prof. Peirce, of Cambridge, to Prof. Henry, of Washington.

I have just completed the perturbations of Uranus by Neptune, and am now certain that Neptune will account for these perturbations; so completely, indeed, as to show that the former theories were somewhat defective, for they did not satisfy the observation of 1690, which now appears to be as good as any other. The following table contains the residual differences between the theoretical and observed longitudes of Uranus, which are to be attributed to defects of theory or to errors of observation. I have also, for the purpose of comparison, copied from Leverrier and Adams their outstanding differences of the same kind, after the introduction of their hypothetical planets; and I have, moreover, added a final column from Leverrier of the residual perturbations which were originally to be accounted for, provided that orbit of Uranus is adopted which best coincides with modern observations. It will be perceived, from this table, that the motions of Uranus contain no indication of another external planet, or of any error in the mass of Saturn. Neptune stands, therefore, in direct opposition to the proposition, that no planet, placed at a less mean distance than 35 times the distance of the earth from the sun, can possibly account for the observed irregularities in the motion of Uranus to within 5″ of arc for modern observations, and 10″ for ancient ones. The table is computed from Walker's last elements of Neptune as a basis.

Residual Differences between the Theoretical and Observed Longitudes of Uranus, from the Theories of Peirce, Leverrier and Adams.

Date.	From Peirce's Theory of Neptune, adopting for its Mass, That given by Bond's Observations of the Satellite. $=\frac{1}{19840}$	That given by Bond's and Lassell's Observations combined. $=\frac{1}{18780}$	Struve's Mass derived from his own Observations of Satellite. $=\frac{1}{14494}$	From Leverrier's original Theory, with his Hypothetical Planet.	From Adams' Theory, with his Second Hypothetical Planet.	From Leverrier's best Orbit for the Modern Observations, without any external Planet.
1845	−0.″9	−1.″2	−2.″8	−0.″3		+6.″5
1840	−1.1	−1.3	−1.3	+2.2	+1.″3	+0.7
1835	+2.0	+2.4	+3.9	−0.8	−1.2	−4.5
1829	+0.8	+1.3	+2.5	−2.2	+2.0	−7.3
1824	−2.0	−1.9	−1.6	−5.4	+1.7	−7.6
1819	+1.0	+0.7	+0.9	+0.4	−2.2	+3.8
1813	−0.3	+1.1	−2.3	−0.9	−1.0	+4.5
1808	−0.4	−0.6	−1.3	+0.8	0.0	+3.8
1803	+0.8	+1.2	+3.2	+0.8	+1.6	−3.4
1797	+0.3	+0.8	+3.3	−1.0	−0.5	−6.7
1792	+0.3	+0.5	+1.6	+0.3	−1.1	−7.8
1787	−0.5	−1.2	−4.7	−1.2	−0.2	+2.0
1782	−3.0	−5.6	−18.3	+2.3	0.0	+20.5
Ancient. 1769	−6.0	−16.0	−67.0	+3.7	+1.8	+123.3
Ancient. 1756	+4.0	−12.7	−102.4	−4.0	−4.0	+230.9
Ancient. 1715	+8.7	+10.0	−99.6	+5.5	−6.6	+279.6
Ancient. 1690	+0.8	+13.0	−124.7	−19.9	+50.0	+289.0

BENJAMIN PEIRCE.

Cambridge Observatory, March 23, 1848.

Prof. Frazer read the following extract from a letter addressed to him by Prof. S. S. Haldeman, of Columbia.

Columbia, Pa., 4th Sept. 1848.

Some time back I offered before the Philosophical Society an explanation of the apparent projection of a star during occultation, upon the disk of the moon, and the following experiment induces me to believe it essentially correct. Let a pair of disks, having nearly the same shade of colour, be placed so far from the eye as to render it impossible to tell their relative distance. Let the edge of one (p) representing the planet, to which the eye is chiefly directed, be made gradually to approach and to pass closely behind that representing the moon (m), when it will be found that the impression of *p* remains, while that of *m* envelopes it; that is, that the images become confluent, and for a short period coexistent; particularly when the

retina has become fatigued and surcharged with the two images by long attention. The principal attention being directed to *p*, its limb will appear to pass over that of *m;* whilst an equal attention to both will cause them to intersect like two translucent disks. This double intersection is not apparent when one of the bodies is very small, the light of the larger being suffused over the smaller, which, moreover, does not present sufficient area to allow the intersection of so small a portion of the larger limb to be observed. When the apparent diameter of *p* is not greater than that of the coexisting limbs, as when the experiment is performed with a small pin's head and a silver coin, it is evident that the greater part, if not the whole of the image, may coalesce with that of *m* upon the retina, producing the phenomenon in question.

I wish this experiment to be verified by other eyes than my own, especially as it has only succeeded with my near-sighted eye, at arm's length, during day-light. At about six feet distance, by lamp-light, and with two dimes, my son could not distinguish which one passed over the other; or rather he believed that the moving body (p) passed in front; but I did not allow more than one-tenth inch of intersection. A single person might perform the experiment by placing the disks upon one end of a strip of board, and so adjusting them, that by the motion of the board, the one should appear to the eye stationed at the other end, to pass over the other.

Pending nominations, from No. 203 to 223, inclusive, and new nomination, 224, were read.

Prof. Frazer, Reporter, laid upon the table No. 39, Vol. IV. of the Proceedings of the Society.

Stated Meeting, April 21.

Present, thirty-five members.

Dr. Patterson, Vice-President, in the Chair.

Letters were received and read:—

From the New York Historical Society, dated New York, 9th April, 1848, transmitting the Proceedings of the Society,